Methods of Administering Medication
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Abstract—There are so many different ways of administering medications, that there are too many to list. Doctors and researchers have been finding ways to make delivering medication more effective and comfortably, as to not affect your daily life.

I. INTRODUCTION

Doctors have been looking for different methods of administering medication to patients since medication was first developed. Since medication has been developed, patients have refused to take the medication due to poor taste, painful delivery systems, and the side effects. Drug delivery companies have been working on controlled release medication, delivering large molecules, masking the taste, fast release capsules for immediate results, and ways of delivering the medication right to the source.

II. METHODS

There are a huge number of methods to administer medication. Medication has been taken orally since the ancient Egyptians. Today medication is delivered orally, either by swallowing pills, capsules, or drinking a liquid. Intravenous (IV) injections administer the medication directly into the blood. Intramuscular injections, inject the medication directly into the muscle, intratumoral injections which inject the medication directly into a tumor. And you rub a cream, with medication in it, onto the skin. Some newer technologies are artificial DNA nanostructures, biodegradable particles, and micelles and dendrimers. Micelles are nanoparticles that contain a concentrated medication surrounded by a lipid bilayer. Once in the body the lipid bilayer will break apart over time and release the medication.

III. FUTURE DIRECTION

In the next 10 to 20 years, protein and peptide based drugs will constitute more than half of the new drugs going onto the market. Another direction is gene therapy. Gene therapy is expected to emerge as one of the major ways of treating diseases. Doctors will replace a mutated gene with a therapeutic gene. Scientists are also trying to make medicated inhalants that you can breathe in by using an inhaler.

IV. LIMITATIONS

There are many limitations when it comes to medications. Often large molecules degrade rapidly in the blood stream and they have a limited ability to cross cell membranes and generally cannot be delivered orally. The Liposomes tend to have stability issues which cause the molecule to fall apart. It is also hard to create Liposomes in large scales. When you are working with molecules on the nano level, sterilization starts to become very challenging because you have to kill foreign bacteria while not destroying the molecules. And the drugs often have diminished potency due to the drug metabolizing in the body.

IV. DISCUSSION

Because we have many methods of administering medication, patients are more likely to take the medication prescribed by their doctors. Oral medications are better tasting and longer lasting, some lasting up to 24 hours. Injections are less painful and you are injected less frequently because the medications don’t metabolize as fast as they once did. And doctors are using nanoparticles to deliver medication more accurately and when the medication is needed so it’s not wasted.

REFERENCES